

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-017345**Date Inspected:** 08-Oct-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice E6/E7
- B). Field Splice E7/E8
- C). Ventilation Access Hole, Insert Plate
- D). Erection Access Hole, Insert Plate

A). Field Splice E6/E7

The QAI observed the Ultrasonic Testing (UT) of the R2 repair on the "A" deck plate field splice identified as WN: 6E-7E-A1. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination of the CJP was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 25.4mm diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 12.7mm diameter transducer. At the conclusion of the testing the QC technician noted one (1) rejectable discontinuity and appears to have an extended length with tail indications running from the main body of the discontinuity.

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 6E-7E-E1 and E2. The welding was performed by the welder /operators Rory Hogan ID-3186 and Jeremy

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Dolman ID-5042 utilizing the WPS ABF-WPS-D15-3042A-1, Rev. 0. The WPS was also used by the QC inspector William Sherwood as a reference during the monitoring of the welding and verifying the welding parameters which were observed as follows: 242 amps, 23.4 volts and a travel speed measured as 189 mm. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead position (4G) with the work at an approximate incline of 22 degrees and the weld metal deposited from the underneath side. The welding of this weld joint was not completed on this date.

### B). Field Splice E7/E8

The QAI observed the Ultrasonic Testing (UT) of the deck plate field splice identified as WN: 7E-8E-A1 through A5. The testing was performed by the QC technicians Tom Pasqualone and Steve McConnell utilizing a G.E. /Krautkramer USM 35X. The examination of the CJP was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 25.4mm diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. The testing of this weld joint was not completed during this shift.

Prior to the UT testing, the QAI observed the QC inspectors Salvador Merino and Tom Pasqualone perform the Magnetic Particle Testing (MPT) on the CJP groove weld and at the conclusion of the testing no rejectable indications were noted by the QC inspectors. The testing was performed utilizing Parker Contour Probes, DA-400 and the procedure identified as SE-MT-D1.5-CT-100 Rev.4.

### C). Ventilation Access Hole, Insert Plate

The QAI observed the welding and the weld profile grinding of the ventilation access hole, insert plate, identified as WN: 2E-PP10.5-E2-L2E-SW. The welding was performed by, Wai Kitlai ID-2953, utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1010, Rev. 0. The WPS was also utilized by the QC inspector Patrick Swain as a reference to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which was recorded as 128 amps by the QC inspector. The 3.2 mm electrode was utilized with the welding performed in the overhead (4G) position with the work in an approximately horizontal plane and the weld metal deposited from the underside. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. This work was not completed during this shift.

The QAI also observed the QC inspector Patrick Swain perform the Magnetic Particle Testing (MPT) on the "A" face of the weld joint and no rejectable indications were noted by the QC inspector. Mr. Swain utilized a Parker Contour Probe, DA-400, to perform the MPT and the procedure identified as SE-MT-D1.5-CT-100 Rev.4.

### D). Erection Access Hole, Insert Plate

The QAI observed the repair welding on the erection access hole insert plate identified as Weld Number (WN): 1E-PP11-W1,W2, W3 and W4 Repair cycle R1. The welder, Darcel Jackson ID-9967, performed the welding utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified

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as ABF-WPS-D15-1001 Repair, Rev. 0. The WPS was also utilized by the QC inspector Patrick Swain as a reference to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which was recorded as 135 amps by the QC inspector. The 3.2 mm electrode was utilized with the welding performed in the flat (1G) position and the work in an approximate horizontal plane with the weld metal deposited from the upper side. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The welding of the repairs was completed during this shift and QC/VT is in progress.

### QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW and the FCAW-G welding processes appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



### Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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**Inspected By:** Reyes,Danny

Quality Assurance Inspector

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**Reviewed By:** Levell,Bill

QA Reviewer